NBS Special Publication 686

State Measurement Laboratories

Program Description - Part I
Directory - Part II

U.S. Department of Commerce
National Bureau of Standards
Gaithersburg, MD 20899

The National Bureau of Standards[1] was established by an act of Congress on March 3, 1901. The Bureau's overall goal is to strengthen and advance the nation's science and technology and facilitate their effective application for public benefit. To this end, the Bureau conducts research and provides: (1) a basis for the nation's physical measurement system, (2) scientific and technological services for industry and government, (3) a technical basis for equity in trade, and (4) technical services to promote public safety. The Bureau's technical work is performed by the National Measurement Laboratory, the National Engineering Laboratory, the Institute for Computer Sciences and Technology, and the Center for Materials Science.

The National Measurement Laboratory

Provides the national system of physical and chemical measurement; coordinates the system with measurement systems of other nations and furnishes essential services leading to accurate and uniform physical and chemical measurement throughout the Nation's scientific community, industry, and commerce; provides advisory and research services to other Government agencies; conducts physical and chemical research; develops, produces, and distributes Standard Reference Materials; and provides calibration services. The Laboratory consists of the following centers:

- Basic Standards[2]
- Radiation Research
- Chemical Physics
- Analytical Chemistry

The National Engineering Laboratory

Provides technology and technical services to the public and private sectors to address national needs and to solve national problems; conducts research in engineering and applied science in support of these efforts; builds and maintains competence in the necessary disciplines required to carry out this research and technical service; develops engineering data and measurement capabilities; provides engineering measurement traceability services; develops test methods and proposes engineering standards and code changes; develops and proposes new engineering practices; and develops and improves mechanisms to transfer results of its research to the ultimate user. The Laboratory consists of the following centers:

- Applied Mathematics
- Electronics and Electrical Engineering[2]
- Manufacturing Engineering
- Building Technology
- Fire Research
- Chemical Engineering[2]

The Institute for Computer Sciences and Technology

Conducts research and provides scientific and technical services to aid Federal agencies in the selection, acquisition, application, and use of computer technology to improve effectiveness and economy in Government operations in accordance with Public Law 89-306 (40 U.S.C. 759), relevant Executive Orders, and other directives; carries out this mission by managing the Federal Information Processing Standards Program, developing Federal ADP standards guidelines, and managing Federal participation in ADP voluntary standardization activities; provides scientific and technological advisory services and assistance to Federal agencies; and provides the technical foundation for computer-related policies of the Federal Government. The Institute consists of the following centers:

- Programming Science and Technology
- Computer Systems Engineering

The Center for Materials Science

Conducts research and provides measurements, data, standards, reference materials, quantitative understanding and other technical information fundamental to the processing, structure, properties and performance of materials; addresses the scientific basis for new advanced materials technologies; plans research around cross-country scientific themes such as nondestructive evaluation and phase diagram development; oversees Bureau-wide technical programs in nuclear reactor radiation research and nondestructive evaluation; and broadly disseminates generic technical information resulting from its programs. The Center consists of the following Divisions:

- Inorganic Materials
- Fracture and Deformation[3]
- Polymers
- Metallurgy
- Reactor Radiation

[1]Headquarters and Laboratories at Gaithersburg, MD, unless otherwise noted; mailing address Gaithersburg, MD 20899.
[2]Some divisions within the center are located at Boulder, CO 80303.
[3]Located at Boulder, CO, with some elements at Gaithersburg, MD.

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H. V. Oppermann

National Bureau of Standards
Gaithersburg, MD 20899

U.S. DEPARTMENT OF COMMERCE, Malcolm Baldrige, Secretary
NATIONAL BUREAU OF STANDARDS, Ernest Ambler, Director

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FOREWORD

As part of its mission to promote uniform standards of measurement throughout the country, the National Bureau of Standards (NBS) received funding in 1965 to issue new standards of mass, length, and volume to State weights and measures laboratories. This program included the equipment needed to perform calibrations in these measurement areas.

To maintain the validity of these standards and to assure that the standards are used properly, NBS trains State metrologists in the test procedures used in the NBS laboratories and conducts a voluntary certification program for State weights and measures laboratories. As part of the certification requirements, NBS requires that a State have adequate facilities in which to perform the measurements; the metrologist must receive the necessary training and submit data demonstrating the results of applying the test procedures; and the laboratory must establish measurement control programs acceptable to NBS in the various measurement areas. The certification program is described in Part I.

The directory in Part II lists State measurement laboratories and the services they provide to State and local weights and measures agencies as well as industry. It is intended to assist potential users in locating and obtaining needed services. This directory provides:

- a reference to laboratory services
- definition of services
- fees ,if any, for services.

PART I

STATE LABORATORY CERTIFICATION

INTRODUCTION

The National Bureau of Standards (NBS) conducts a program whereby State laboratories are certified by measurement areas. This certification does not mean that the measurements made by a State are certified, but only recognizes that an apparent capability to perform reliable measurements exists and that the metrologist has been trained in the proper procedures to provide these measurements. Additionally, the certification indicates that the metrologist has fulfilled the requirements and submitted the data requested by NBS for certification. Each State laboratory is responsible for the validity of its measurements.

The fact that a laboratory is not certified should not imply that the laboratory is inadequate or that its measurements are not valid. Rather, it indicates that a laboratory has not provided the necessary information to permit the NBS to evaluate its capability. Consequently, the NBS cannot take a position regarding the capability of this laboratory. Such laboratories must provide their own documentation to justify the validity of their measurements.

In 1965, Congress provided funds for NBS to issue new standards of mass, volume, and length to the States, the District of Columbia, Puerto Rico, and the Virgin Islands to update their laboratories and increase their measurement capabilities. This was called the New State Standards Program. This program included the necessary laboratory equipment to use these standards and provide measurement services. Each jurisdiction was responsible for providing a laboratory and a metrologist to be trained to use the standards and the equipment. The standards were issued to the States from 1967 through 1978. Since that time, many States have purchased additional equipment to increase their measurement capability and to expand into other measurement areas, such as liquid-in-glass thermometry, the frequency testing of tuning forks for police radar guns, and the testing of large-volume provers.

MEASUREMENT AREAS FOR CERTIFICATION

A brief summary of each measurement area contained in the certification program is provided under the headings of Tolerance Testing and Calibration. Some States provide measurement services in other areas, but the NBS has not developed criteria to serve as the basis for laboratory certification in these areas. Consequently, they are not included in the certification program.

Each laboratory certified in a given area has been judged to be capable of providing the measurement services indicated. The range of standards that can be tested by a laboratory will depend upon the equipment it has purchased in addition to that received through the New State Standards Program. A general classification of the range of standards that can be tested is indicated by the headings of the tables of services available. The mass classifications for tolerance testing are given in pounds whereas the mass classifications for calibration are given in kilograms because inch-pound standards are usually used in tolerance testing and metric standards in calibrations. Comparable standards in other mass units of measure can also be tested.

TOLERANCE TESTING

A tolerance can be simply defined as the permitted difference between the nominal value of the standard and its actual value under specific conditions. Tolerance testing is the process in which a standard is tested to determine if the actual value of the standard is within tolerance. To be certified to a tolerance class, a standard must comply with the specifications and tolerances for the specified tolerance class.

Mass

Tolerance testing of mass standards is usually done according to specifications included in:

- NBS Handbook 105-1
- American Society for Testing and Materials Standard E617, Classes 4, 5, and 6
- NBS Circular 547, Classes P, Q, and T
- NBS Circular 3, Classes A, B, and C.

Tolerance testing to International Organization of Legal Metrology tolerances of classes F_2, M_1, and M_2 and other tolerances can be performed upon request.

Volume

Tolerance testing of volume standards is divided into small-, intermediate-, and large-volume standards depending upon the laboratory standards to be used. Small-volume standards may have a capacity up to 25 gallons. Glassware standards may be tested to NBS Handbook 105-2 tolerances or the tolerances stated in Federal regulations. Metal field standards are tested to NBS Handbook 105-3.

The capacities of intermediate-volume standards range from 25 through 500 gallons. Large-volume standards have capacities in excess of 500 gallons. These standards are usually tested to NBS Handbook 105-3.

CALIBRATION

Calibration is the process of comparing an unknown standard to a known standard and assigning a value, along with an uncertainty, to the unknown standard. The uncertainty expresses the extent to which that assigned value may be in error relative to its reference base, which typically is the national standard. When calibrated by a State laboratory, the assigned value may or may not be within the specified tolerance; hence, the correction and uncertainty assigned to the standard should be used in subsequent measurements. In some cases, the uncertainties assigned to standards will exceed the specified tolerances. The uncertainties reflect the level of precision the State laboratories can achieve. The uncertainty will differ from one laboratory to another depending on standards and equipment available to perform the measurement. Potential customers should contact the State laboratory to verify that the assigned uncertainty is adequate for their needs.

Mass

Calibrations are usually performed on mass standards designed to:

American Society for Testing and Materials Standard E617, Classes 1, 2, and 3

NBS Circular 547, Classes J, M, S, and S-1

International Organization of Legal Metrology Classes E_2 and F_1.

Depending on the laboratory, air buoyancy corrections may or may not be made. Customers should specify the apparent mass reference density desired for their calibration and the density of the mass standards.

Volume

Small glassware standards are usually calibrated gravimetrically or by volume transfer. The capacity of metal standards is typically 5 gallons or 20 liters.

Length

Steel tapes up to several hundred feet may be calibrated. The uncertainties are typically a few thousandths of a foot. Rigid rules up to 12 inches can be calibrated with uncertainties of several thousandths of an inch.

Frequency

The frequency calibration services are usually limited to tuning forks used with police radar guns.

Temperature

Temperature calibration is generally limited to liquid-in-glass thermometers. Some States test only clinical thermometers of this type. The standards for most States are also liquid-in-glass thermometers. The uncertainties for temperature calibration will vary among the laboratories. Many requests for calibrations involve tolerances specified by the customer.

REQUIREMENTS FOR LABORATORY CERTIFICATION

There are three general requirements for certification:

1. The State must have adequate laboratory facilities and equipment to provide the services that are offered.

2. The metrologist must receive regular training and demonstrate the ability to perform the laboratory measurements.

3. The metrologist must implement and maintain measurement control programs in various measurement areas as required by NBS.

The requirements for the laboratory facilities and general operation are contained in the NBS handbook entitled "Certification of Capabilities of State Measurement Laboratories." The laboratories are evaluated through a self-appraisal checklist submitted by the metrologist, usually followed by an on-site evaluation. The metrologist is evaluated on the basis of performance in training seminars, the work submitted to NBS as part of the laboratory assignments, participation in technical meetings, and a review of laboratory data and test procedures during the on-site evaluation. The quality of a laboratory's measurement results are evaluated through its control charts and round robin experiments. Brief discussions of these topics follow.

TRAINING AND EVALUATION

The NBS trains State metrologists in the basic laboratory metrology procedures for mass, volume, and length measurement during a two-week seminar. The test procedures are researched in NBS publications. The metrologists must then complete a series of laboratory assignments and submit the data to NBS to document their understanding of the procedures and the calculations. Additional laboratory problems are assigned to each laboratory to establish measurement control programs in several measurement areas.

Each metrologist is expected to attend the intermediate metrology seminar to receive additional training in laboratory procedures and in the corrections needed for high precision measurement. Following this seminar, the metrologists are assigned a series of problems to demonstrate their understanding of the seminar material.

States that expand into other areas of measurement are encouraged to attend specialized seminars conducted by the NBS calibration laboratories. Examples of these areas are temperature and pressure measurements. The laboratories must then establish measurement control programs in these measurement areas to assure agreement with NBS results.

Each State is expected to participate in Regional Measurement Management Programs (RMMPs). These RMMPs are groups of laboratories in given geographical areas that have joined together to conduct meetings for the purpose of training and demonstration of procedures, and to conduct round robin experiments to promote uniform measurements in their geographical area. The knowledge exhibited by metrologists in these meetings and their results on the round robin experiments are included as part of the evaluation of the State laboratories.

MEASUREMENT CONTROL

The NBS criteria require State weights and measures laboratories to utilize formal quality control techniques to ensure that their measurements are sufficiently accurate to meet their needs on a continuing basis. If such techniques are properly employed, it is possible to quantify the uncertainties of the measurements. Monitoring them over time can assure that they remain sufficiently small to meet operational requirements. The NBS has been working closely with the State weights and measures laboratories to help them improve and demonstrate their ability to perform high-quality calibrations.

Measurement control programs have been established for mass calibration and the volume transfer testing of glass volume standards. These programs will be expanded into the other measurement areas. Round robin experiments are conducted to investigate the agreement of the State laboratories in the other measurement areas.

The measurement control programs consist of two parts: internal control programs and external control programs.

INTERNAL CONTROL PROGRAMS

The internal measurement control programs generally consist of repeated measurements on the same objects over an extended period of time. The data are then plotted on control charts to establish the limits of random errors in the measurement processes. If these repeated measurements are made on the standards themselves, this approach monitors the standards as well as the variability of the measurement process.

Statistical confidence tests are used to monitor the stability of the standards and the variance of the measurement process. The control chart data can be used to document the validity of measurements made on a given day. Finally, the control chart data are used to determine if the standards agree with the NBS-reported values. Disagreement with the NBS-reported values requires corrective action. If the problem persists, the standards must be recalibrated by NBS.

In some measurement areas it is not possible to keep a standard or standards in the laboratory simply for the purpose of measurement control. In these instances, repeated measurements are run on each standard submitted for test. Differences in test results are then plotted on a "range" chart. The process variance is estimated from the range in the measurements made on many standards. The range chart is also used to verify that repeated measurements made on a given standard fall within the indicated limits.

In some instances, such as the volume transfer testing of glass flasks, a combination of control and range charts is used. The type of measurement control program depends on the criticality of the measurements, the availability of standards for use as "check" standards, and the tolerances for the standards under test. The frequency of measurements made to control the measurement process and the type of control program utilized are tailored to the measurement area under investigation.

EXTERNAL CONTROL PROGRAMS

In the external measurement control programs, standards external to the laboratory are submitted to the laboratory for test. These external standards are usually calibrated by the NBS to provide a reference value. These standards are usually circulated as part of round robin experiments conducted and coordinated by the Regional Measurement Management Programs (RMMPs). Although the NBS provides values for the circulating standards, the round robin experiments are developed, coordinated, and analyzed by the RMMPs. The NBS participates in the data analysis and the regional meetings to identify any problems and to provide training to eliminate discrepancies. This information is vital to the NBS certification program. The RMMPs are thus an integral part of the NBS certification program and reduce the amount of effort necessary to monitor the State laboratories.

The external measurement control programs are used to compare the RMMP results to the NBS values. These programs investigate the presence of systematic errors and can be used to test the variance of the measurement processes. Plots of interlaboratory results are frequently used to analyze data. Internal measurement control programs should be established before a laboratory participates in round robin experiments to obtain maximum benefits from these external measurement control programs.

The RMMPs are groups of State and, to a limited extent, private laboratories that have joined together to conduct meetings and perform round robin tests in mass, length, and volume to promote uniformity in test procedures and measurement results. Five RMMPs provide the opportunity for all the States, the District of Columbia, Puerto Rico, and the Virgin Islands to participate (Figure 1):

- Northeastern Measurement Assurance Program (NEMAP)
- Southeastern Measurement Assurance Program (SEMAP)
- Western Regional Management Group (WRMG)
- Mid-America Measurement Assurance Program (Mid-Map)
- Southwestern Assurance Program (SWAP)

The NBS goal is to provide an external measurement control system that is available to all States. The overall goal is for each State to participate in one of the five RMMPs. The RMMPs promote uniform measurement results by:

1. providing training through the presentation of papers prepared by members,
2. demonstrating test procedures to assure uniformity,
3. conducting round robin experiments to investigate the presence of measurement errors, and
4. addressing mutual problems.

Uniformity among RMMPs is attained through additional NBS training at the meetings, the calibration of standards used in the round robin experiments, and the evaluation of the round robin results. The RMMPs interact further through the Metrology Workshops held in conjunction with the National Conference on Weights and Measures. Members of each RMMP report on activities and round robin results and discuss ways of improving their condition.

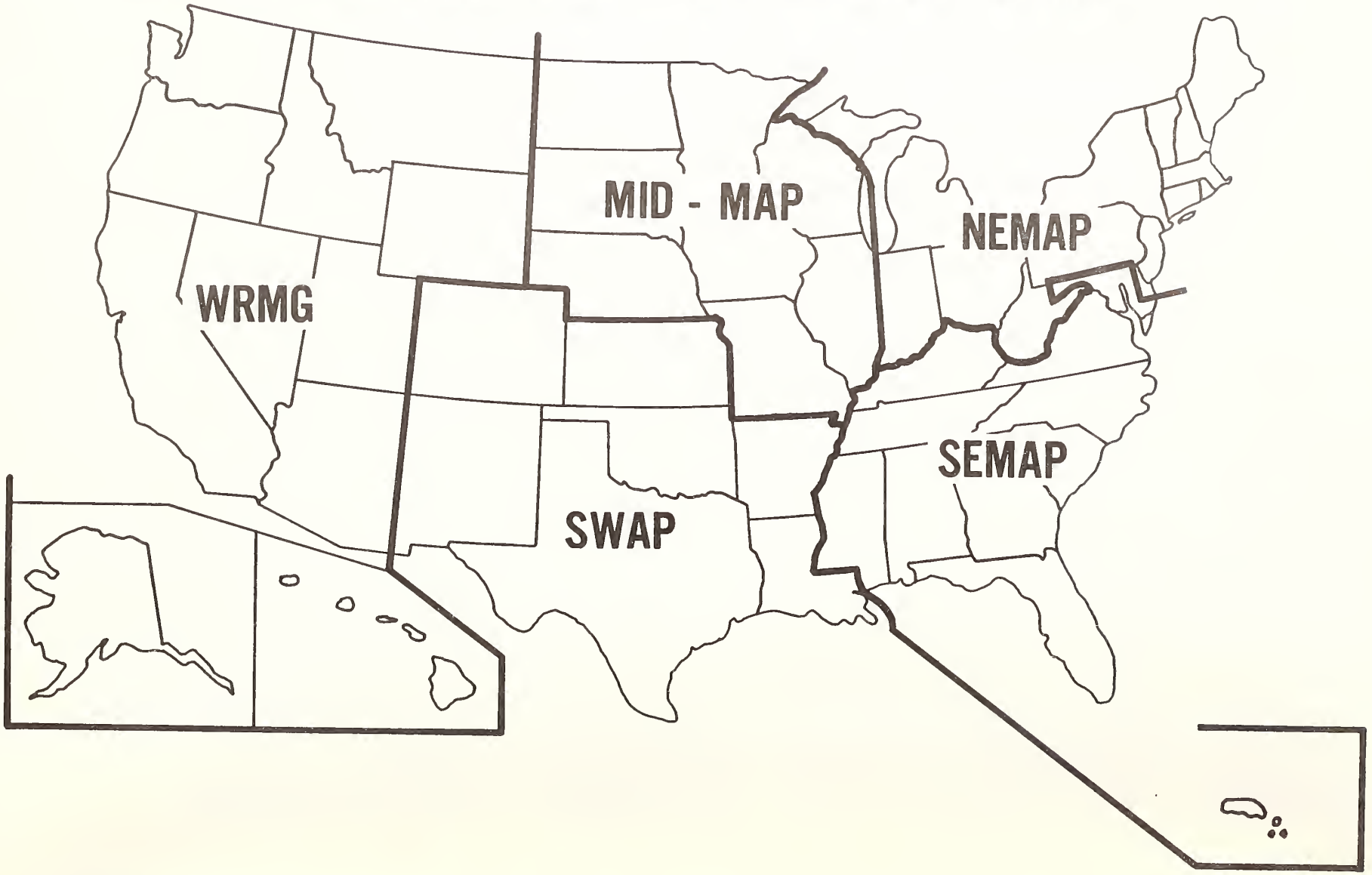
CONCLUSION AND SUMMARY

Each State must have a trained metrologist and an adequate laboratory facility, and must demonstrate on a continuing basis that it is capable of providing valid measurements in order to be certified in a particular measurement area. The certification by NBS indicates that the laboratory is capable of providing a measurement service, but each State must justify the validity of its own measurements.

The table that follows summarizes the certified areas of measurement for each State. Part II provides detailed information to assist industry and government agencies in locating laboratories that provide needed measurement services.

Figure 1

REGIONAL MEASUREMENT MANAGEMENT PROGRAMS



Certified Areas of Measurement for 1984

	TOLERANCE TESTING					CALIBRATION							
	Mass		Volume			Mass		Volume		Length		Freq.	Temp.
	Weight ≤ 1000 lb	Weight > 1000 lb	Small < 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
Alabama	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Alaska	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Arizona	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Arkansas	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
California	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Colorado	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Connecticut	✓		✓			✓	✓	✓	✓	✓	✓		✓
Delaware	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
District of Columbia	✓	✓	✓			✓	✓	✓	✓	✓			
Florida	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Georgia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Hawaii													
Idaho	✓	✓	✓	✓		✓	✓			✓			
Illinois	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Indiana	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		
Iowa	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Kansas	✓	✓	✓			✓	✓	✓		✓	✓	✓	
Kentucky	✓		✓	✓	✓					✓	✓		
Louisiana													

Certified Areas of Measurement for 1984

	TOLERANCE TESTING					CALIBRATION							
	Mass		Volume			Mass		Volume		Length		Freq.	Temp.
	Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
Maine	✓		✓	✓	✓	✓				✓	✓	✓	
Maryland	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓
Massachusetts	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		
Michigan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Minnesota													
Mississippi	✓		✓			✓	✓			✓	✓		
Missouri	✓			✓	✓							✓	
Montana													
Nebraska	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Nevada	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		
New Hampshire	✓		✓			✓	✓			✓	✓		
New Jersey	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
New Mexico	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
New York	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
North Carolina	✓		✓	✓	✓			✓	✓	✓	✓		✓
North Dakota	✓	✓	✓	✓	✓	✓							
Ohio	✓	✓	✓	✓		✓	✓		✓	✓	✓		
Oklahoma	✓	✓	✓			✓	✓	✓	✓	✓	✓		
Oregon	✓	✓	✓	✓	✓	✓	✓			✓	✓		

Certified Areas of Measurement for 1984

	TOLERANCE TESTING					CALIBRATION							
	Mass		Volume			Mass		Volume		Length		Freq.	Temp.
	Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
Pennsylvania	✓	✓	✓	✓		✓	✓			✓	✓		
Puerto Rico													
Rhode Island													
South Carolina	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		
South Dakota	✓		✓										
Tennessee	✓		✓			✓							
Texas	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Utah													
Vermont	✓		✓	✓				✓					
Virginia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Virgin Islands													
Washington	✓	✓	✓	✓	✓	✓	✓			✓			
West Virginia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Wisconsin	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		
Wyoming	✓		✓	✓									

PART II

DETAILED INFORMATION BY STATE

This section contains the following information by State (in alphabetical order):

1. Name(s) of laboratory staff
2. Mailing address
3. Telephone number(s)
4. Services available (see Part I for definitions of services)
5. Fee structure (if any).

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
John B. Rabb, Laboratory Supervisor John W. Campbell, Metrologist Terry Snow, Weights & Measures Inspector	Division of Weights and Measures Dept. of Agriculture and Industries P.O. Box 3336 Montgomery, AL 36109	205/261-2613-4 (Office) 205/261-2652 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Darrel E. Cavender, Metrologist	Department of Commerce and Economic Development Division of Measurement Standards Box 111686 Anchorage, AK 99511	907/345-7750

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	N	N	N	N	N	N	N	N	N	N	N	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Richard P. Horn, Metrologist Roger Macey, Inspector	Weights and Measures Division Department of Administration 3039 West Indian School Road Phoenix, AZ 85017	602/255-5211

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	F	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $10 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Billy W. Sullivant, Lab. Supervisor Charles Kirspel, Jr. Metrologist Randall W. Burns, Metrologist	Weights and Measures Division Arkansas Bureau of Standards 4608 West 61st Street Little Rock, AR 72209	501/371-1759

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	N	N	N	N	N	N	N	N	N	N	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Joseph Rothleder, State Metrologist Thomas S. Fletcher, Weights & Measures Technician III Sandra Pifer, Weights & Measures Technician II Ronald Flores, Weights & Measures Technician I	Division of Measurement Standards Dept. of Food and Agriculture 8500 Fruitridge Road Sacramento, CA 95826	916/366-5119

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	X	F

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $24 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Frank H. Brzoticky, Chief Metrologist	Weights and Measures Section Metrology Laboratory Department of Agriculture 3125 Wyandot Street Denver, CO 80211	303/866-2845

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	F	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $15 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Robert E. Simmons, Metrologist	Div. of Standards and Inspection Department of Agriculture Drawer D Dover, DE 19901	302/736-4824

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	N	N	N	N	N	N	N	N	N	N	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Earl E. Maxwell, Chief	Office of Licenses and Permits Weights, Measures and Markets Div. Dept. of Licenses, Investigations and Inspections 1110 U Street, SE Washington, DC 20020	202/767-7923

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	X	X	F	F	F	F	F	X	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $15 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
William Cogburn, Metrologist Supervisor Edward T. Koeppen, Metrologist	Bureau of Weights and Measures Department of Agriculture 3125 Conner Boulevard Tallahassee, FL 32301	904/488-9295

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	N	N	N	N	N	N	N	N	N	N	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Thomas E. Kirby, Director Martin T. Coile, Sr. Lab. Scientist Brenda J. Whitener, Prin. Lab. Tech. Renee L. Farley, Sr. Lab. Tech.	Weights and Measures Laboratory Atlanta Farmers Market Forest Park, GA 30050	404/363-7611-2

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	N	N	N	N	N	N	N	N	N	N	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
James Maka, Metrologist	Measurement Standards Division Department of Agriculture P.O. Box 22159 Honolulu, HI 96822	808/548-7168

SERVICES AVAILABLE *

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
X	X	X	X	X	X	X	X	X	X	X	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

* Laboratory is not certified

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
A. Dale Hurd, Metrologist	Bureau of Weights & Measures Department of Agriculture 2216 Kellogg Lane Boise, ID 83702	208/334-2345

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	N	N	N	X	N	N	X	X	N	X	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Stephen E. McGuire, Metrologist Richard Philmon, Metrologist Associate	Bureau of Laboratories Metrology Section Illinois Department of Agriculture 801 East Sangamon Avenue Springfield, IL 62706	217/785-8480

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $40 per hour (precision weights)
$25 per hour (field standards)

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Peter W. Boykin, Metrologist	State Board of Health 1330 West Michigan St., Rm. A-120 Indianapolis, IN 46206	317/633-0789

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	N	N	N	X	N	N	N	N	N	N	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Robert E. Hollis, Metrologist Robert K. Brown, Laboratory Assistant III	Weights and Measures Division Iowa Department of Agriculture Henry Wallace Building Des Moines, IO 50319	515/281-5861

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	X	X

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FEES

All weights up to and including twenty-five pounds---------- $ .75 each
All weights up to and including fifty pounds---------- 1.50 each
Over fifty pounds capacity, up to and including one hundred pounds---------- 2.00 each
Over one hundred pounds capacity, up to and including five hundred pounds---------- 3.00 each
Over five hundred pounds capacity, up to and including one thousand pounds---------- 5.00 each

CLEAN AND PAINT WEIGHTS----- 6.00 each

The fee for all prover calibrations shall be as follows:

100 gallons up to and including 300 gallons---------- $ 3.00
301 gallons up to and including 500 gallons---------- 5.00
501 gallons up to and including 1000 gallons---------- 7.50
1001 gallons up to and including 2000 gallons---------- 10.00
2001 gallons up to and including 3000 gallons---------- 12.00
3001 gallons up to and including 4000 gallons---------- 14.00
4001 gallons up to and including 5000 gallons---------- 16.00
5001 gallons up to and including 6000 gallons---------- 18.00
6001 gallons up to and including 7000 gallons---------- 20.00
7001 gallons and up---------- 25.00

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
James H. Akey, Metrologist DeVern H. Phillips, Assistant Metrologist	Kansas Department of Agriculture Weights and Measures Division 2016 West 37th Street P.O. Box 5516 Topeka, KS 66605	913/267-4641 (Office) 913/267-0278 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	X	X	F	F	F	X	F	F	F	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $25 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Mark L. Whitaker, Metrologist	Division of Weights and Measures Department of Agriculture 106 West Second Street Frankfort, KY 40601	502/564-4870

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	X	F	F	F	X	X	X	X	F	F	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Randall K. Bellon, Metrologist	Division of Weights and Measures Department of Agriculture P.O. Box 44456, Capitol Station Baton Rouge, LA 70804	504/925-3780 (Office) 504/342-6683 (Lab)

SERVICES AVAILABLE *

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
X	X	X	X	X	X	X	X	X	X	X	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

* Laboratory is not certified

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Marshall M. White, Metrologist	Division of Inspections Department of Agriculture State Office Building Augusta, ME 04333	207/289-2751

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	X	F	F	F	F	X	X	X	F	F	F	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $20.00 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Charles R. Stockman, Metrologist Joseph M. Danko, Metrology Technician Harry Johnson, Metrology Technician Timothy J. Summers, Metrology Technician	Weights and Measures Section Department of Agriculture 50 Harry S. Truman Parkway Annapolis, MD 21401	301/841-5790 (Office) 301/454-5117 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	X	X	F	F	F	F	X	F

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $16.50 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
James Crittenden, Superintendent of Standards Laboratory Donald Smith, Standards Laboratory Technician	Division of Standards McCormick Building, Room 1115 One Ashburton Place Boston, MA 02108	617/727-3480 (Office) 617/727-5698 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	X	F	F	F	F	F	F	X	X

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FEES

WEIGHTS

Tolerance Testing

Up to and including 2 lbs	$2.00 each
Over 2 lbs and including 50 lbs	2.50 each
Up to and including 1 kilogram	2.00 each
Over 1 kilogram and including 30 kg	2.50 each

If a request is made that weights be adjusted to meet the indicated tolerance, an additional charge of $1.00 per weight shall be made on those weights which are readily adjustable.

Apparent Mass Calibrations

Up to and including 2 lbs	$3.00 each
Over 2 lbs and including 50 lbs	3.50 each
Up to and including 1 kilogram	3.00 each
Over 1 kilogram and including 30 kg	3.50 each

Volumetric Measures

Glass Flasks and Graduates	$10.00 each
Field Test Measures up to and including 5 gallons	5.00 each
Field Test Measures over 5 gallons	$10.00 each

Steel Tapes

50 feet or less	$10.00 each
Over 50 feet and including 100 feet	12.00 each
Over 100 feet	15.00 each

All other work to be done at the rate of $15.00 per hour.

Massachusetts

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Harold Birgy, Metrologist and Weights and Measures Specialist Frank Nagele, Metrologist and Weights and Measures Specialist	Food Division Department of Agriculture Ottawa Building, 4th Floor P.O. Box 30017 Lansing, MI 48909	517/373-1060

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $29 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Joslyn W. Donnan, Metrologist Michael Blacik, Metrologist	Division of Weights and Measures 1015 Currie Avenue Minneapolis, MN 55403	612/341-7208

SERVICES AVAILABLE*

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
X	X	X	X	X	X	X	X	X	X	X	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $47 per hour
* Laboratory is not certified

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Ervin D. Torrence, Metrologist	Department of Agriculture and Commerce P.O. Box 1609 Jackson, MS 39205	601/359-3648 (Office) 601/877-3802 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	X	N	X	X	N	N	X	X	N	N	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Robert Wittenberger, Lab Program Supervisor and Metrologist Vicki Boeckman, Metrology Lab Assistant	Weights and Measures Division Department of Agriculture P.O. Box 630 Jefferson City, MO 65102	314/751-3440 (Office) 314/751-2922 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	X	X	F	F	X	X	X	X	X	X	F	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $25 per hour, tolerance testing
$35 per hour, precision calibration/with a minimum of one hour charge for either method.
Time periods over one hour shall be computed to the nearest hour.

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Edgar L. Kelsh, Metrologist	Division of Weights and Measures 1424 9th Avenue Helena, MT 59620	406/444-3164

SERVICES AVAILABLE *

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
X	X	X	X	X	X	X	X	X	X	X	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $10 per hour

* Laboratory is not certified

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Richard Suiter, Metrologist Gary Kliment, Metrologist Craig Olson, Metrologist	Division of Weights and Measures Department of Agriculture P.O. Box 94757 Lincoln, NE 68509	402/471-4292 (Office) 402/471-2176 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $23 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Walter F. Headrick, Metrologist	Nevada Department of Agriculture P.O. Box 11100 Reno, NV 89431	702/789-0166

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	X	F	F	F	O	O	O	F	F	O	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $20 per hour plus parts and parking costs

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Michael Grenier, Metrologist	Bureau of Weights and Measures 85 Manchester Street Concord, NH 03310	603/271-3709

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	X	F	X	X	F	F	X	X	F	F	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Test weights 500 lb and 1,000 lb - $25
Test weights 5, 10, 25, 50 lb - $10
Test kits - 30 lb - $30
Glass flasks - $10
Field test measures 1 and 5 gal - $10
All other calibrations @ $25 per hour

LABORATORY STAFF ADDRESS TELEPHONE NUMBER

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
William J. Bonan, Metrologist Pasquale D'Errico, Weights and Measures Inspector III	Office of Weights and Measures Dept. of Law and Public Safety 187 West Hanover Street Trenton, NJ 08625	609/292-4615 (Office) 609/984-3598 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	X	N	N	N	N	N	N	N	N	N	N	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Richard F. Schulmeister, Metrologist	Standards and Consumer Services NM Department of Agriculture P.O. Box 3170 Las Cruces, NM 88003	505/646-1616

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	F	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

SERVICES PERFORMED	PERSONNEL SERVICES (per man hour)	EQUIPMENT CHARGES (when applicable)	MILEAGE
Metrology (1/2 hour minimum)	$20.00		$0.26
Scale Testing			
Small capacity	$18.00	$ 5.00	$0.26
Large capacity	$15.00	$15.00	$0.75
Meter Testing			
Small capacity	$15.00	$ 5.00	$0.24
Large capacity	$18.00	$ 7.50	$0.26
LP Gas	$15.00	$ 6.00	$0.24
Volumetric calibrations	$15.00	$ 7.50	$0.26

Miscellaneous: For services not covered by the above schedule, the department may charge a fee depending on the service requested and the circumstances. Such fees will not exceed the cost of providing the service as determined by the department.

New Mexico

LABORATORY STAFF ADDRESS TELEPHONE NUMBER

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Ross Andersen, Metrologist	Bureau of Weights and Measures 1220 Washington Avenue Building 7-A Albany, NY 12235	518/457-3452

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

(a) Mass Standards

(1) Tolerance testing by direct weighing or single substitution
Classes C and F:

Test kits 1 - 18 weights, largest weight not exceeding 5 kg (11 lb)	$12.00
Test kits 19 - 40 weights, largest weight not exceeding 5 kg (11 lb)	20.00
Up to and including 3 kg (6.6 lb)	2.00
Over 3 kg and including 30 kg (66 lb)	4.00
Over 30 kg and including 300 kg (660 lb)	8.00
Over 300 kg and including 1200 kg (2646 lb)	15.00

(2) Tolerance testing and calibration by double substitution and/or weighing design with traceability where required
Classes A, E, J, M, P, O, S, S-1 per weights:

Up to and including 3 kg (6.6 lb)	5.00
Over 3 kg and including 30 kg (66 lb)	10.00
Over 30 kg and including 300 kg (660 lb)	15.00
Over 300 kg and including 1200 kg (2646 lb)	20.00

(b) Volumetric Standards

(1) Tolerance testing and adjustment where applicable of open neck vessels by transfers:

Up to and including 4 L (1.1 gal)	2.00
Over 4 L and including 20 L (5.3 gal)	4.00
Over 20 L and including 100 L (26.4 gal)	10.00
Over 100 L and including 1000 L (2640 gal)	20.00
Over 1000 L	.02/l

(2) Tolerance testing of slicker plate vessels by gravimetric techniques:

Up to and including 4 L (1.1 gal)	4.00
Over 4 L and including 40 L (11 gal)	10.00

(c) Linear Standards

(1) Tolerance testing:

Up to and including 2 m (6.6 ft)	4.00
Over 2 m and including 16 m (52 ft)	8.00
Over 16 m and including 61 m (200 ft)	12.00

(2) Calibrations:
For each reported interval requested, add to above fee .50

(d) For any special test requested, an hourly rate of $5.00 shall be charged. Estimates shall be given upon request.

New York

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
L. F. Eason, Metrologist Osby Clark, Assistant Metrologist Wayne Dix, Assistant Metrologist A. Lynn Gordon, Assistant Metrologist	Standards Division Department of Agriculture 1400 Western Boulevard Raleigh, NC 27606	919/733-3246

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	X	N	N	N	X	X	N	N	N	N	X	N

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

North Carolina

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Bruce Niebergall, Metrologist	Department of Weights and Measures Public Service Commission State Capitol Bismarck, ND 58505	701/224-2413

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	X	X	X	X	X	X	X

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FEES*

500 pound and 1000 pound----------2.50

1 pound thru 50 pounds---------- 1.50

Test Kits (All)----------10.00

Field test measures 1 thru 5 gallon capacity-------- 3.00

Liquid tanks 1000 gal and under----------20.00

Liquid tanks 1000 thru 6000----------30.00

Liquid Tanks 6000 gal and over----------40.00

*Equipment not properly prepared will not be accepted for calibration unless by prior appointment only and a fee of $30.00 per hour will be charged for cleaning and painting.

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
James C. Truex, Metrologist	Division of Weights and Measures Ohio Department of Agriculture 8995 East Main Street Reynoldsburg, OH 43068	614/866-6361

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo
F	F	F	F	X	F	F	X	F	F	F	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $15 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Ken Fraley, Metrologist	Oklahoma Bureau of Standards 2800 North Lincoln Oklahoma City, OK 73105	405/521-3864 X370

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	X	X	F	F	F	F	F	F	X	X

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FEES

Tolerance test for Class 6 and F standards of mass.

	Tolerance Test No Adjustment	When Necessary Adjust & Retest
Up to and including 5 lbs or 3 kg	$2.00	$3.00
Over 5 lb or 3 kg and including 50 lb or 30 kg	4.00	6.00
Over 50 lb or 30 kg and including 500 lb or 300 kg	6.00	15.00
Over 500 lb or 300 kg and including 1000 lb or 500 kg	10.00	20.00
Over 1000 lb or 500 kg and including 2500 lb or 1250 kg	15.00	25.00

Tolerance test for Class 4 and 5 standards of mass.

Up to and including 5 lb or 3 kg	3.00	4.00
Over 5 lb or 3 kg and including 50 lb or 30 kg	5.00	8.00
Over 50 lb or 30 kg and including 500 lb or 300 kg	8.00	18.00
Over 500 lb or 300 kg and including 1000 lb or 500 kg	12.00	22.00

Tolerance test for Class 2 and 3 standards of mass.

Up to and including 5 lb or 3 kg	5.00	7.00
Over 5 lb or 3 kg and including 50 lb or 30 kg	10.00	15.00
Over 50 lb or 30 kg and including 500 lb or 300 kg	12.00	22.00
Over 500 lb or 300 kg and including 1000 lb or 500 kg	15.00	25.00

Report of Calibration with mass corrections and uncertainties stated.

Up to and including 5 lb or 3 kg	$6.00
Over 5 lb or 3 kg and including 25 lb or 10 kg	10.00
Over 25 lb or 10 kg and including 50 lb or 30 kg	16.00
Over 50 lb or 30 kg and including 500 lb or 300 kg	20.00
Over 500 lb or 300 kg and including 1000 lb or 500 kg	25.00
Over 1000 lb or 500 kg and including 2500 lb or 1250 kg	30.00

Tolerance test for standards of volume.

Up to and including 1 gal or 4 liters	5.00
Over 1 gal or 4 liters and including 5 gal or 20 liters	10.00
Over 5 gal or 20 liters and including 50 gal or 200 liters	35.00
Over 50 gal or 200 liters and including 100 gal or 400 liters	60.00
Over 100 gal or 400 liters and for each 5 gal or 20 liters	4.00

(Report of Calibration with corrections and uncertainties, twice tolerance test fee.)

Tolerance test for standards of length.

Every foot or meter tested	2.00/ft or m.
Every 10 feet or 3 meters tested	2.50/10 ft or 3 m.
Every 50 feet or 15 meters tested	10.00/50 ft or 15 m.
Every 100 feet or 30 meters tested	15.00/100 ft or 30 m.

(Report of Calibration with corrections and uncertainties, twice tolerance test fee.)

Special tests (not listed in fee schedule) are performed @ $25.00/hr.

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
James F. Clifford, Metrologist	Weights and Measures Division Agriculture Building 635 Capitol Street, NE Salem, OR 97310	503/378-3792

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	X	X	F	F	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $24 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
G. Edward Carpenter, Metrologist James C. Adams, Metrologist	Bureau of Standards Weights and Measures 2301 North Cameron Street Harrisburg, PA 17120	717/787-9089 (Office) 717/787-6426 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo
N	N	N	N	X	N	N	X	X	N	N	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Juan A. Rios Vélez, Metrologist	Bureau of Enforcement Department of Consumer Affairs P.O. Box 41059, Minillas Station Santurce, Puerto Rico 00940	809/724-5153

SERVICES AVAILABLE *

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	X	F	F	F	F	F	F	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

I. Mass Standards

A. Classes C and F

1. Up to and including 5 lbs. ..... $ 2.00
2. Over 5 and including 50 lbs. 3.00
3. Over 50 and including 250 lbs. 10.00
4. Over 250 and including 500 lbs. 20.00
5. Over 500 and including 1000 lbs. 30.00
6. Over 1000 and including 2500 lbs..... 38.00

B. Classes P, Q perweight up to 100 g. 1.00

C. Classes A, B, J, M, O, S, S-1 up to 100 g. perweight 1.50

II. Volumetric Standards

Tolerance testing and adjustment where applicable of open neck vessel by brasfer.

A. Metal volumetric field standard

1. Up to and including 10 gal. ..... $ 6.25
2. Over 10 gal..... 6.25 plus $0.25 per gal. In excess of 10 gal.

B. Glass volumetric apparatus

1. Up to and including 100 ml. ..... $ 6.25/doz.
2. Over 100 ml. including 1000 ml.....12.50/doz.

III. Linear Standards

A. Tolerance testing

1. Up to and including 50 ft...$5.00
2. Over 50 and including 100 ft. 8.00
3. Over 100 ft...$10.00 plus $2.00 every 25 ft. in excess of 100 ft.

IV. Metric Devices

Fees will be those of the customary system with an allowed equivalent variation of 10% of its capacity.

Note:

Equipment shall be clean and painted before submission. If not and this or any other work is needed prior to the service requested an extra $10.00 per hour fee will be charged.

* Laboratory is not certified

Puerto Rico

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Lynda P. Agresti, Sealer of Weights and Measures	Weights and Measures Division Department of Labor 386 Central Avenue Pawtucket, RI 02860	401/277-2758

SERVICES AVAILABLE *

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo
X	X	X	X	X	X	X	X	X	X	X	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $7.50 per hour

* Laboratory is not certified

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
John V. Pugh, Metrologist Billy Kennington, Metrologist	Consumer Protection Division Department of Agriculture P.O. Box 11280 Columbia, SC 29211	803/758-2130

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	X	N	N	N	N	N	N	N	N	N	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Jim Pesky, Metrologist	Division of Commercial Inspection and Regulation Department of Commerce State Capitol Pierre, SD 57501	605/773-3693

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	X	F	X	X	X	X	X	X	X	X	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Labor . . . . . $20 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Charles Edde, Laboratory Technician	Weights and Measures Section TN Department of Agriculture Box 40627, Melrose Station Nashville, TN 37204	615/360-0159 (Office) 615/360-0158 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	X	N	X	X	N	X	X	X	X	X	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
James H. Eskew, Chief Metrologist Kendall Koonce, Metrologist Jose Patroni, Metrology Patrick Forester, Metrologist Wayne Bamsch, Metrologist Jason Justice, Metrologist	TX Department of Agriculture Metrology Laboratory 119 Cumberland Road Austin, TX 78704	512/475-3720

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	F	F	F	F	F	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Tolerance Testing:

5,000 lb	$20.00	per weight
2,500 lb	10.00	per weight
1,000 lb	5.00	per weight
Under 1,000 lb	2.00	per weight
5-Gallon Measures	2.00	per measure
1-Gallon Measure	2.00	per measure

Larger than 5-Gallon is $2.00 plus 20¢ per gallon per measure

Calibrations:

0 to 30 kilograms	$15.00 per weight
3 to 30 kilograms	30.00 per weight
30 kilograms and over	50.00 per weight

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Daniel S. Mays, Metrologist	UT Department of Agriculture Weights and Measures Division 350 N. Redwood Road Salt Lake City, UT 84116	801/533-7550

SERVICES AVAILABLE *

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
X	X	X	X	X	X	X	X	X	X	X	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

* Laboratory is not certified

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Raymond P. Cioffi, Metrologist	Department of Agriculture 116 State Street Montpelier, VT 05602	802/828-2436

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	X	F	F	X	X	X	F	X	X	X	X	X

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FEES

Labor . . . . . $25 per hour

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Marion W. Cain, Metrologist James W. Sadler, Assistant Metrologist	Weights and Measures Section Div. of Product & Industry Regulation Dept. of Agriculture & Consumer Servs. P.O. Box 1163, Room 403 Richmond, VA 23209	804/786-0479

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo
N	N	N	N	N	N	N	N	N	N	N	N	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Imbert Roberts	Consumer Services Administration Golden Rock Christiansted St. Croix, Virgin Islands 00820	809/773-2226

SERVICES AVAILABLE *

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
X	X	X	X	X	X	X	X	X	X	X	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

* Laboratory is not certified

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
James H. Cammel, Metrologist	Weights and Measures Section Dairy and Food Division Department of Agriculture 406 General Administration Building Olympia, WA 98504	206/753-5042

SERVICES AVAILABLE *

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
N	N	N	N	N	N	N	X	X	N	X	X	X

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X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Washington

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Karl H. Angell, Metrologist Charles Honaker, Inspector	Department of Labor Division of Consumer Protection Charleston, WV 25305	304/348-7890 (Office) 304/727-5781 (Lab)

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo
N	N	N	N	N	N	N	N	N	N	N	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
William E. Burkhardt, Metrologist Alan Porter, Metrologist	Wisconsin Department of Agriculture Trade and Consumer Protection Box 7883 4702 University Avenue Madison, WI 53707	608/266-2761

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	F	F	F	F	F	X	F	F	F	F	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

Value of Standards	Fee
Test Weights--500 pound and 1,000 pound	$ 7.50 each
All other test weights--such as 50 pounds, 25 pounds, 5 pounds, 1 pound, and other individual and smaller units	4.50 each
Test Kits--30 pounds (25 pieces)	30.00 each
Glass Flasks	15.00 each
Field Test Measures--1 and 5 gallon cap.	9.00 each
Provers--50 and 100 gallon capacity	30.00 each

These fees are based on equipment being ready for test at time of submission, and with one man provided by submitting agency. All other work, including preparation of equipment which is not properly prepared for test will be performed at the normal rate of $30.00 per hour. A minimum fee of 1/2 hour time will be charged.

The verification of weights and measures used in enforcement work by State, county, and municipal governments shall be exempt from the above noted charges.

Wisconsin

LABORATORY STAFF	ADDRESS	TELEPHONE NUMBER
Victor Gerber, Metrologist	Wyoming Department of Agriculture 2219 Carey Avenue Cheyenne, WY 82002	307/777-7556

SERVICES AVAILABLE

TOLERANCE TESTING					CALIBRATION							
MASS		VOLUME			MASS		VOLUME		LENGTH		FREQ.	TEMP.
Weight ≤ 1000 lb	Weight > 1000 lb	Small ≤ 25 gal	Inter. 25-500 gal	Large > 500 gal	Weight ≤ 3 kg	Weight > 3 kg	Small Glassware	Metal Stds	Steel Tapes	Rigid Rulers	Tuning Forks	Liquid in Glass Thermo.
F	X	F	F	X	X	X	X	X	X	X	X	X

O: Service to parent organization only; F: Service available on fee basis; N: Service available, no fee.

X: Services are either not available, certification was not requested, or certification was not granted.

FEES

The charges for laboratory services listed below are MINIMUM fees; any additional time needed to correct, clean, or paint equipment submitted for calibration shall be charged at the rate of $25.00 per hour plus cost of materials used.

Weights

Tolerance Test

Up to and including 5 lb	$ 2.00
Over 5 lb and including 50 lb	2.50
Over 50 lb and including 250 lb	3.50
Over 250 lb and including 500 lb	6.00
Over 500 lb and including 1000 lb	11.00
Over 1000 lb and including 2500 lb	16.00

Test Kit Fees for Class C, F, and T Weights

1 - 14 weights in kit	14.00
15 - 25 weights in kit	18.00
26 - 38 weights in kit	26.00
39 weights in kit and over	$1.50 per weight over 38 weights.

Test Kit Fees for Class A, B, J, M, P, O, S and S1

1 - 14 weights	20.00
15- 25 weights	26.00
26 - 38 weights	32.00

Linear Measures

One yard or less	.50
Over one yard, per each additional yard over one yard	.25
Counter yard measures, one yard or less (installed)	3.50
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Up to and including one gallon	2.00
Over one gallon, including 15 gallons	3.00
Over 15 gallons, including 50 gallons	13.00
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Over 100 gallons, including 500 gallons	25.00

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[ ] Document describes a computer program; SF-185, FIPS Software Summary, is attached.

11. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here)

The National Bureau of Standards receives repeated requests from industry and Federal agencies (e.g., Department of Defense, Nuclear Regulatory Commission) for information about the capabilities of and services provided by State measurement laboratories.

This directory is a compilation of such information by State, including a description of the services available and fees charged. The directory will be updated annually in January of each year to coincide with the issuance of annual certification of these laboratories.

12. KEY WORDS (Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)

calibration; State Directory; State services; tolerance testing; weights and measures.

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